

**ABSTRACT OF THE DISCLOSURE**

Methods, systems and kits for the simultaneous or sequential analysis of one or more hormones by mass spectrometry are disclosed. The methods require minimal sample size and minimal preparation time. The methods comprise ionizing the hormones and analyzing the hormones by mass spectrometry. In addition, methods, systems and kits for the simultaneous or sequential analysis of thyroid hormones are disclosed comprising ionization of the thyroid hormones in the negative mode using an electrospray source.